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1 **EXAMINER ERRS IN REJECTION OF CLAIMS 45, 48-51 AND 57 AS BEING**
2 **UNPATENTABLE OVER NIELSEN (USPN 5,435,134) IN VIEW OF**
3 **ANDERSON (USPN 4,442,887)**

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6 **HILL VS NIELSEN**

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- 8 1. The Nielsen pump is a single acting pump that relies on a negative pressure
9 created by spring loaded suction valves on the upstroke of the piston to do its'
10 work i.e. driving a hydraulic motor connected to a generator.
- 11 2. The Hill ballast-weighted piston (8) eliminates the need for a negative pressure
12 in the pumping chamber as required by Nielsen.
- 13 3. The Hill ballast-weighted piston (8) eliminates the need for reducing the
14 pressure in the pumping chamber until the sea water starts to boil as required
15 by Nielsen.
- 16 4. The Nielsen pump does no work on the down stroke of the piston other than to
17 open a flap check valve to allow the water to flow back into the sea at the
18 ambient water pressure of the surrounding sea.
- 19 5. The Hill pump on the upstroke allows water to flow into its' cylinder and does
20 no work other than raising the ballast-weighted piston and opening the inlet
21 valves at ambient water pressure.

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- 1 6. The Hill pump uses the weight of the ballast-weighted piston to create a
- 2 positive pressure and do work on the down stroke.
- 3 7. The inlet valves in the Hill Pump require no springs to maintain a negative
- 4 pressure in the pumping chamber as is required in the Nielsen Pump.
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HILL VS ANDERSON

- 7 1. The Anderson flexible connector is used to lift the piston without ballast and pump on
- 8 the upstroke while allowing fluid to flow into the pumping chamber under the force of
- 9 gravity on the down stroke.
- 10 2. The examiner errs in saying the Anderson Pump discloses a mooring ring guide and
- 11 wear ring. Anderson does disclose a solid shaft with packing or "O" rings instead.
- 12 3. The upper end of the Anderson pump must be tightly sealed to prevent the pumped
- 13 water from escaping into the surrounding sea as it is pumping water on the upstroke.
- 14 4. This mandates the use of rigid shaft to pass through packing seals or "O" rings at the
- 15 top of the pumping chamber and attached to the flexible connector outside of the
- 16 pumping chamber at the shaft's upper end while the shaft's lower end is connected to
- 17 the piston.
- 18 5. Either packing or sealing "O" rings must be used where the shaft exits the pumping
- 19 chamber to create a tight seal and connects to the flexible connector.

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1 6. Using the flexible connector to pump on the upstroke mandates the pumping chamber
2 be defined as the upper top surface of the piston, enclosed top cylinder, cylinder walls
3 between the top of the piston and the top of the cylinder, cylinder shaft, packing and/or
4 “O” rings surrounding the shaft and the hole at the top of the pumping cylinder where
5 the shaft exits.

6 7. The Anderson flexible connector with its rigid shaft connection restricts the length of
7 the pumping motion to the length of said shaft.

8 Whereas my connector is an improvement as it –

9 1. The Hill connector (4) raises Hill's ballast-weighted piston (8), bringing fluid in under
10 the force of gravity on the upstroke and pumping the fluid out by the weight of Hill's
11 ballast-weighted piston (8) on the down stroke.

12 2. This eliminates the need for a rigid shaft enclosed in packing between the connector
13 and piston as is needed in the Anderson pump.

14 3. This eliminates the need for an enclosed upper end as the pumping chamber as is
15 needed in Anderson pumps.

16 4. This eliminates the need for packing or sealing “O” rings around a rigid shaft as is
17 needed in the Anderson pumps.